82978

S/142/60/003/002/018/022
E192/E382

Evaluation of the Condenser Capacitance in the Emitter
Circuit of a Transistor in Tuned Amplifiers

the input and the output resistances of the amplifier are
determined. These resistance are expressed by Eqs. (6) and
(7). The input resistance can become negative when the
inequality defined by Eq. (8) is fulfilled, whereas the
output resistance is negative when the condition expressed
by Eq. (10) is met. The final expression for the emitter
capacitance C is given by:

$$c \geqslant c_e = \gamma + \sqrt{\gamma^2 - \lambda} \qquad (12)$$

where:

$$\gamma = \frac{\tau_{11} + \tau_{21}}{2r_{21}} \; , \; \lambda = \frac{1}{\omega^2 r_{21} R} \qquad .$$

The quantities τ_{11}, τ_{21} and r_{21} in Eq. (12) are defined
on p. 288. Experiments showed that Eq. (12) permits
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S/142/60/003/002/018/022
E192/E382

Evaluation of the Condenser Capacitance in the Emitter
Circuit of a Transistor in Tuned Amplifiers

determination of a satisfactory value of C .
There are 3 figures and 5 Soviet references, one of which
is translated from English.

ASSOCIATION: Kafedra radiotekhniki Khar'kovskogo aviats-
                 ionnogo instituta   (Chair of Radio-Engineering
                 of the Khar'kov Aviation Institute)

SUBMITTED: May 30, 1959, initially;
                 September 21, 1959, after revision.

Card 3/3

9.2520

AUTHOR: Simonov, Yu. L.

TITLE: Stability Analysis of Resonance Amplifiers With Semiconductor Triodes

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol 5, Nr 3, pp 430-438 (USSR)

ABSTRACT: One of the basic drawbacks of semiconductor triodes as compared to electron tubes is a considerable internal feedback due to reverse conductance:

$$-Y_{12} = \frac{1}{r_{12}} + j\omega C_{12}$$

It is known that Y-parameters (among these r_{12} and C_{12}) depend on the frequency of the semiconductor. This article contains stability analysis of semiconductor triode resonance amplifiers. (1) Input Conductance

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Stability Analysis of Resonance Amplifiers
With Semiconductor Triodes

of Semiconductor Triode With Oscillation in Collector
Circuit (see Fig. 1). Its input conductance is the
sum of Y_{11} and insertion Y_C conductances; Y_l is
load conductance.

$$Y_s = \frac{Y_{12}Y_{21}}{Y_{22}+Y_l} \cdot \frac{1}{R_C} + jB_C$$ (1)

Active, R_C, and reactive, B_C, components of insertion
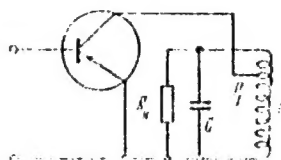conductances

Fig. 1.

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Stability Analysis of Resonance Amplifiers
With Semiconductor Triodes

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SOV/109-5-3-11/26

characterize the load reaction on the input conductance
of triode. After some substitutions and transforma-
tions, R_c is determined as:

$$R_c \approx \frac{\eta r a(1 + \omega^2 \tau_0^2)}{r_i^2 R_o} \cdot \frac{1 + r^2}{1 + \omega^2(\tau_{12} \tau_{21} + \tau_0)^2} \qquad (2)$$

where

$$a = r_i C_c \tan^{-1} \frac{r_i}{r_o}.$$

From (2) it is apparent that quantity R_c depends not
only on the sign and the magnitude of detuning a
but also on τ_{12} and τ_{21}. Assuming that in the area
of small detuning of collector circuit (2) a is the
only variable, the values of a are found at which
function (2) assumes minimum values:

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Stability Analysis of Resonance Amplifiers
With Semiconductor Triodes

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$$z_1 = \frac{1 + \omega^2 \tau_{12}\tau_{21} + \sqrt{(1 + \omega^2 \tau_{12}^2)(1 + \omega^2 \tau_{21}^2)}}{\omega(\tau_{12} - \tau_{21})} , \tag{3}$$

$$z_2 = \frac{\sqrt{(1 + \omega^2 \tau_{12}^2)(1 + \omega^2 \tau_{21}^2)} - 1 - \omega^2 \tau_{12}\tau_{21}}{\omega(\tau_{12} - \tau_{21})} , \tag{4}$$

Substituting (3) and (4) into (2), the expressions for
minimum magnitude of insertion resistance are obtained:

$$R_{\text{min}} = \frac{2\tau_{12}\tau_{21}q^2}{p_1^2 R_e} ,$$

$$R'_{\text{min}} = \frac{2\tau_{12}\tau_{21}q'^2}{p_1^2 R_e} , \tag{5}$$

where

$$q = \frac{1 + \omega^2 \tau_{12}\tau_{21} + \sqrt{(1 + \omega^2 \tau_{12}^2)(1 + \omega^2 \tau_{21}^2)}}{\omega^2(\tau_{12} - \tau_{21})^2} ; \tag{6}$$

$$q' = \frac{\sqrt{(1 + \omega^2 \tau_{12}^2)(1 + \omega^2 \tau_{21}^2)} - 1 - \omega^2 \tau_{12}\tau_{21}}{\omega^2(\tau_{12} - \tau_{21})^2} ; \tag{7}$$

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$$q \quad |^{2} \quad 1 \quad \omega^{2} q \qquad (8)$$

Equation (8) is basis for determination of stability
conditions in resonance semiconductor triode amplifiers.
(2) Stability Conditions for One-Stage Resonance Amplifier
Equivalent resonance resistance of input circuit (Fig.2)
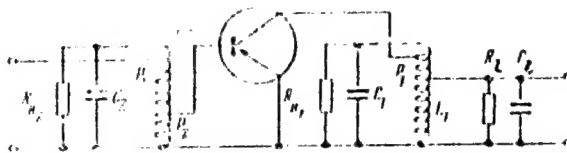is determined as a connection of two resistances in
parallel.

Fig. 2

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Stability Analysis of Resonance Amplifiers
With Semiconductor Triodes

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$$R_e$$

$$R_{e2}$$ $$R$$

$$R_\Theta = \frac{r_b R_{e2}}{r_b + p_2^2 R_{e2}}$$

where p_2 is coefficient of input circuit connection
to the base circuit. If at any combination of detuning
of both circuits $R_{e2}' > 0$ the amplifier will be stable.
To achieve this, it is necessary and sufficient that:

$$|R_{gmin}| > p_2^2 R_{e2} \tag{9}$$

By substituting here R_{gmin} from (6), the stability
condition is found as:

Card 6/15

$$\frac{r_1^2 r_2^2 R_{g1} R_{g2}}{r_0^2 r_a^2 r_i^2} > 2.$$

If $R_{g1} = R_{g2} = R_g$, the above inequality is rewritten as:

$$\frac{r_1^2 r_2^2 R_g^2}{r_0^2 r_a^2 r_i^2} > 2.$$

(3) Stability Condition of a Two-Stage Resonance Amplifier. Equivalent resonance resistance of oscillating circuits L_2, C_2, R_{g2} (Fig. 3) is limited by the double inequality:

$$\frac{R_{g1}}{1 + \varepsilon} < R_{g2} < \frac{R_{g2}}{1 - \varepsilon}, \qquad (10)$$

where

$$\varepsilon = \frac{r_1^2 R_{g1} R_{g2}}{2 r_0 r_a r_i^2}; \qquad \varepsilon = \frac{r_1^2 R_{g1} R_{g2}}{2 r_0 r_a r_i^2};$$

Card 7/11.

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Semiconductor Triodes   SOV/10--5-5-11/25

φ and φ' being determined by (6) and (7), respectively.
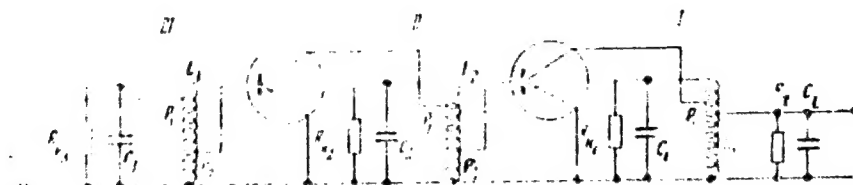

Fig. 3

From a study of (5) and (10) it follows that a minimum value of inserted negative resistance of the second stage (counting from the end of the amplifier) corresponds to:

$$R_c \quad R_e \tag{11}$$

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Substituting (11) into (9):

$$B_{\min} \quad \frac{}{} \quad (1 \quad 9) \qquad (12)$$

Inserting (12) into (9) the stability condition is found for R_{e1}, R_{e2}, R_{e3}, etc:

$$\frac{G_i G_e}{} \quad 1.$$

(5) Stability Condition for Multistage Resonance Amplifiers. Continuing the analysis in the same sequence, it is easy to find that the general expression of R_{emin} for an n-stage amplifier is:

$$B_{} \quad \frac{G_e}{} .$$

wave function $\psi_n(\xi)$ is determined by the recursion formula:

$$\psi_n(\xi) = 1 - \psi_{n-1}(\xi)$$

let

$$\psi(\xi) = \frac{\ldots}{\ldots}$$

Using ( ), stability condition of an n-stage amplifier is written as:

$$\psi_n(\xi) = 1. \hspace{3cm} (1.)$$

and let $1, \ldots$

Stability Analysis of Resonance Amplifiers
With Semiconductor Triodes

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$$\frac{n R K_c}{r_i + r_i^2} < w(n). \qquad (14)$$

when $|2| \ 1 \ 0.763 \ 0.664 \ 0.646 \ 0.636$

For an unlimited increase of n:

$$\frac{n R K_c}{r_i + r_i^2} \ \ 0.500,$$

and $w(n) \ \ 0.500$. The resonance coefficient of a
one-stage amplifier is:

$$K_{\pm} \ \ p_1 p \ \frac{K_c}{r_i C} . \qquad (15)$$

Substituting (15) into (14) and introducing stability
reserve per $k_c \ \ R_c/R_i'$, the limit resonance amplifica-

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tion coefficient is found:

$$K_u = \sqrt{2(1-k_y)\frac{r_{12}}{r_{21}}\tau_0}$$ for $n < t$.

$$K_u = \sqrt{2k_y(1-k_y)\frac{r_{12}}{r_{21}}\tau_0}$$ for $n \gg t$. (16)

where

$$\tau_0 = \frac{1 - \omega_0^2\tau_{12}\tau_{21} + \sqrt{(1 - \omega_0^2\tau_{12}\tau_{21} + \omega_0^2\tau_{21}^2)}}{\omega_0^2(\tau_{12} - \tau_{21})^2}.$$ (17)

Assuming (16) $k_y = 0.9$, it can be rewritten as:

$$K_u = 0.42\sqrt{\frac{r_{12}}{r_{21}}\tau_0}$$ (18)

Thus, a maximum stable amplification with half the number of stages is independent of the method of bridge connection in oscillation circuits and is determined by its four parameters: r_{12}, C_{12}, r_{21}, k_{11}, and its

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With Semiconductor Triodes   SOV/109-5-3-11/26

frequency. Summarizing the above, it is interesting
to note that stability conditions and equations   for
maximum stable amplification coincide with those for
tube amplifiers. This can be explained by the
selection of Π-shaped equivalent circuit and Y-shaped
parameters of semiconductor triodes. (5) Stability
Condition for Resonance Amplifiers With Common Base.
An analysis of the above showed that relations derived
for circuits with common emitter can be used. (6) Con-
cerning Accuracy of Stability Conditions as Derived.
Formula (5) was derived under the assumption that the
triode parameters and the equivalent resonance resistance
of the collector circuit are constant for small de-
tunings of the latter. In the above analyses the input
conductance was used. This poses the problem of how
accurate the stability conditions are. For control
purposes a derivation of stability conditions by the
method of general analysis of linear amplifier stability
is carried out. A method using junction point potentials
is applied and the stability condition found for

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Stability Analysis of Resonance Amplifiers
With Semiconductor Triodes

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$Re(\dot{\beta}\dot{K})$ $a < 1$ as:

$$\frac{p_1^2 p_2^2 R_c^2}{r_{12} r_{21} 2 \zeta^2} < 2.$$

This derived stability condition coincides with stability
conditions derived above for a one-stage amplifier and proves
the acceptability of the input conductance method used.
Moreover, Eq. (5) was experimentally verified using a
fused triode ($\Pi 6 \Gamma$, $f_0 = 150$ kc) and surface barrier
($\Pi 405$, $\Pi 405A$, $f_0 = 5$mc) and diffusion triodes
($\Pi 403$, $f = 5$mc). Parameters r_{12}, r_{21}, C_{12}, L_{21},
and relation of $R_{c\ min}$ to $p_1^2 R_c$ were determined
experimentally. The maximum error, determined as:

$$\lambda = \frac{p_1^2 R_c |R_{c\ min}| - 2 r_{12} r_{21} \zeta^2}{2 r_{12} r_{21} \zeta^2},$$

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was in all tests within the range of 10-20%   Conclusions:
(1) A formula is derived and experimentally checked for
minimum negative insertion resistance for an oscillator
in the collector circuit. (2) It was found that for
$\tau_{12} = \tau_{21}$ the insertion resistance is positive per any
sign and magnitude of collector circuit detuning.   (3)
Stability conditions were derived, and relations for
stable limit amplification for resonance amplifiers with
different cascade numbers of semiconductor triodes.
There are 4 figures; 1 table; and 8 Soviet references.

SUBMITTED: March 19, 1959

Card 15/15

69923

S/109/60/005/05/011/021
E140/E435

9,2520

AUTHOR: Simonov, Yu.L.

TITLE: A Method of Increasing the Stability of Tuned
            Transistor Amplifiers

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol 5, Nr 5,
            pp 811-817 (USSR)

ABSTRACT: The method is based on correction of the internal
            feedback of the transistor. The stability condition of
            a single-stage resonant transistor amplifier is found
            on the basis of linear circuit theory. The method was
            tested experimentally on junction, surface-barrier and
            diffusion transistors. For variable-tuned amplifiers,
            the stabilization element should be a pure resistance
            while for fixed-tuned amplifiers an inductance. As
            shown experimentally, one defect of the method is a
            certain interaction of the tuned amplifier circuits when
            a resistance is used. There are 2 figures, 1 table and
            6 Soviet references.

SUBMITTED: August 10, 1959

Card 1/1

9.2520

26213
S/106/60/000/010/008/009/XX
A055/A133

AUTHOR: Simonov, Yu. L.

TITLE: On the y-neutralization calculation of transistorized resonance
             amplifiers

PERIODICAL: Elektrosvyaz', no. 10, 1960, 35 - 38

TEXT: This article is an analysis of the stability of a transistorized re-
sonance amplifier with y-neutralization, whose neutralization circuit contains
only a condenser (with no resistance in series). Considering points 1 and 2 (Fig.
1) as nodes and using the nodal voltage method, the following characteristic equa-
tions are obtained for a neutralized amplifier:

$$\dot{U}_1\left[Y_0 + \frac{Y_{1}}{p_1^2} + m^2(Y_{11} + Y_N)\right] - \dot{U}_2 m(Y_{12} + mY_N) = \dot{I}_1$$

$$-\dot{U}_1 m(Y_{21} + mY_N) + \dot{U}_2\left[Y_{22} + \frac{Y_{2}}{p_1^2} + m^2(Y_{1} + Y_N)\right] = 0 \qquad (1)$$

where $Y_{11} \ldots Y_{22}$ are the characteristic admittances of the transistor; Y_0, Y_1

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On the y-neutralization calculation of...

are the admittance of the signal source and of the load respectively; Y_b, Y_k are the self-admittance of the basic and the collector oscillating circuit, respectively; $m = \frac{p_2}{p_1}$ is the ratio of the coupling factors of the oscillating circuits: p_2 to the base circuit and p_1 to the collector circuit; $Y_N = i\omega C_N$ is the admittance of the neutralization circuit. The following parameters are also used in the analysis: α_b, R_{eb}, α_k and R_{ek} are, respectively, the generalized detuning and the equivalent resonance resistance of the base circuit and of the collector circuit. β is the feedback coefficient and K is the voltage amplification factor at $\xi = 0$, β and $\dot{K}$ being related by the following equation: $\beta \dot{K} = a + ib$. Using the determinant of the equation-system (1), the author deduces the following expressions for a and b:

$$a = \frac{p_1^2 p_2^2 R_{eb} R_{ek}(1 + \omega \tilde{\tau}_{12})}{r_{12} r_{21}' [\alpha_b \alpha_k + \omega \tau_{21}(\alpha_b + \alpha_k) - 1](1 + \xi^2)} \qquad (7)$$

$$b = \frac{p_1^2 p_2^2 R_{eb} R_{ek}(\omega \tilde{\tau}_{12} - \xi)}{r_{12} r_{21}' [\alpha_b \alpha_k + \omega \tau_{21}(\alpha_b + \alpha_k) - 1](1 + \xi^2)} \qquad (8)$$

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On the y-neutralization calculation of...

where

$$\varepsilon = \frac{\omega\tilde{\tau}_{21} + \gamma_b + \alpha\gamma_k - \gamma_b\alpha_k\omega\tilde{\tau}_{21}}{1 - \omega\tilde{\tau}_{21}(\gamma_b + \gamma_k) - \gamma_b\gamma_k}$$ (9)

$$\tau_{12} = r_{12}(C_{12} - mC_N)$$ (10)

$$\tau_{21} = \frac{L_{21}}{r_{21}}\left[1 - mC_N \frac{r_{21}^2}{L_{21}}\left(1 + \omega^2 \frac{L_{21}^2}{r_{21}^2}\right)\right],$$ (11)

$$r'_{21} = \frac{r_{21}}{(1 - \omega^2 mC_N L_{21})^2 + \omega^2 m^2 r_{21}^2 C_N^2}.$$ (12)

Assuming b = 0, the phase balance condition is:

$$\varepsilon = \omega\tilde{\tau}_{12}$$ (13)

The combined solution of (9) and (13) gives the expressions relating the detunings of the oscillating circuits at phase balance.

$$\alpha_b = \frac{1 - \alpha\gamma_k}{q + \gamma_k}$$ (14)

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On the y-neutralization calculation of...

where:

$$q = \frac{1 + \omega^2 \tau_{12} \tau_{21}}{\omega(\tau_{12} - \tau_{21})}.$$

Substitution of (14) in (7) gives the amplitude balance condition at phase balance:

$$\frac{p_1^2 p_2^2 R_{eb} R_{ek}}{r_{12} r'_{21} \psi(\alpha_k)} = 1 \qquad (15)$$

where   (16)

$$\psi(\alpha_k) = \frac{1 + \alpha_k^2}{q + \alpha_k}(\omega \tau_{12} - q).$$

It is known that the amplifier will be absolutely stable if, at phase balance, the amplitude balance condition is not satisfied, i.e.:

(17)

$$\frac{p_1^2 p_2^2 R_{eb} R_{ek}}{r_{12} r'_{21} \psi(\alpha_k)} < 1$$

Condition (17) must be satisfied at all values of $\psi(\alpha_k)$ and especially at its minimum values. Investigating the extremum values of $\psi(\alpha_k)$, the author finally finds the following expression for the stability condition of the one-stage resonance

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On the y-neutralization calculation of...

amplifier: .

$$\frac{p_1^2 p_2^2 R_{eb} R_{ek}}{r_{12} r'_{21} \gamma (1 + \omega^2 \tau_{21}^2)} < 2 \qquad (21)$$

where

$$\varphi = \frac{1 + \omega^2 \tau_{12} \tau_{21} + \sqrt{(1 + \omega^2 \tau_{12}^2)(1 + \omega^2 \tau_{21}^2)}}{\omega^2 (\tau_{12} - \tau_{21})^2} . \qquad (20)$$

The amplifier stability will thus be the greater, the smaller the magnitude 12

τ_{21}. Besides, if

$$\tau_{12} = \tau_{21}, \qquad (22)$$

the amplifier will be absolutely stable at any value of p_1, p_2, R_{eb} and R_{ek}, and at any value of x_b and x_k. Taking (10), (11) and (22), the author finds the expression for the capacitance of the neutralization circuit condenser:

$$C_N = C_{12} \frac{p_1}{p_2} \frac{1 - \frac{L_{21}}{r_{12} r_{21} C_{12}}}{1 - \frac{r_{21}}{r_{12}} \left(1 + \omega^2 \frac{L_{21}^2}{r_{21}^2}\right)} . \qquad (23)$$

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S/106/60/000/010/008/009/XX
A055/A133

On the y-neutralization calculation of...

Since:

$$\frac{r_{21}}{r_{12}} \left(1 + 2\frac{L_{21}^2}{r_{21}^2}\right) \ll 1,$$
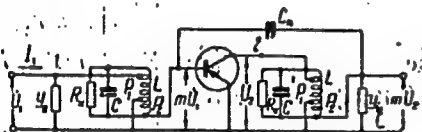
(23) can be given the following simplified form:

$$C_N = C_{12}\frac{p_1}{p_2}\left(1 - \frac{L_{21}}{r_{12}r_{21}C_{12}}\right) \tag{24}$$

There are 1 figure and 6 Soviet-bloc references.

SUBMITTED: October 2, 1959

Fig. 1.

[Abstracter's note: The following subscripts
are translated in the text and formulae:
1 (load) stands for н
b (base) stands for б
e (equivalent) stands for э]

Card 6/6

85486

9.2520 (1024,1154,1159)

S/ 08/60/01 / / /009/0

BO 9/B06

AUTHOR: Simonov, Yu. L., Member of the S. ety

TITLE: Calculation of the Stability of a Single-cir it Resonance
Amplifier Made of Transis rs

PERIODICAL: Radiotekhnika 1960. Vol 5 No   pp   6

TEXT. The stability of a transistor resonance amplifier was inves gated
by the author by a study of its input conductivity The author gives the
well known formula for the input conductivity of such an amplifier with a
grounded emitter circuit, and studies the formulas for the active and the
reactive conductivity. He comes to the conclusion that self-excitation in
transistor resonance amplifiers may occur at both positive and negative
values of the maladjustment of the output circuit Nex he investigates
the conditions of stability for single double   and multiple circuit
resonance amplifiers, and concludes that the formulas for the conditions of
stability and for the stable limiting amplification th resonance
amplifiers agree with those for similar vacuum tube amplifiers. The results
obtained were experimentally verified with the circuit diagram shown in
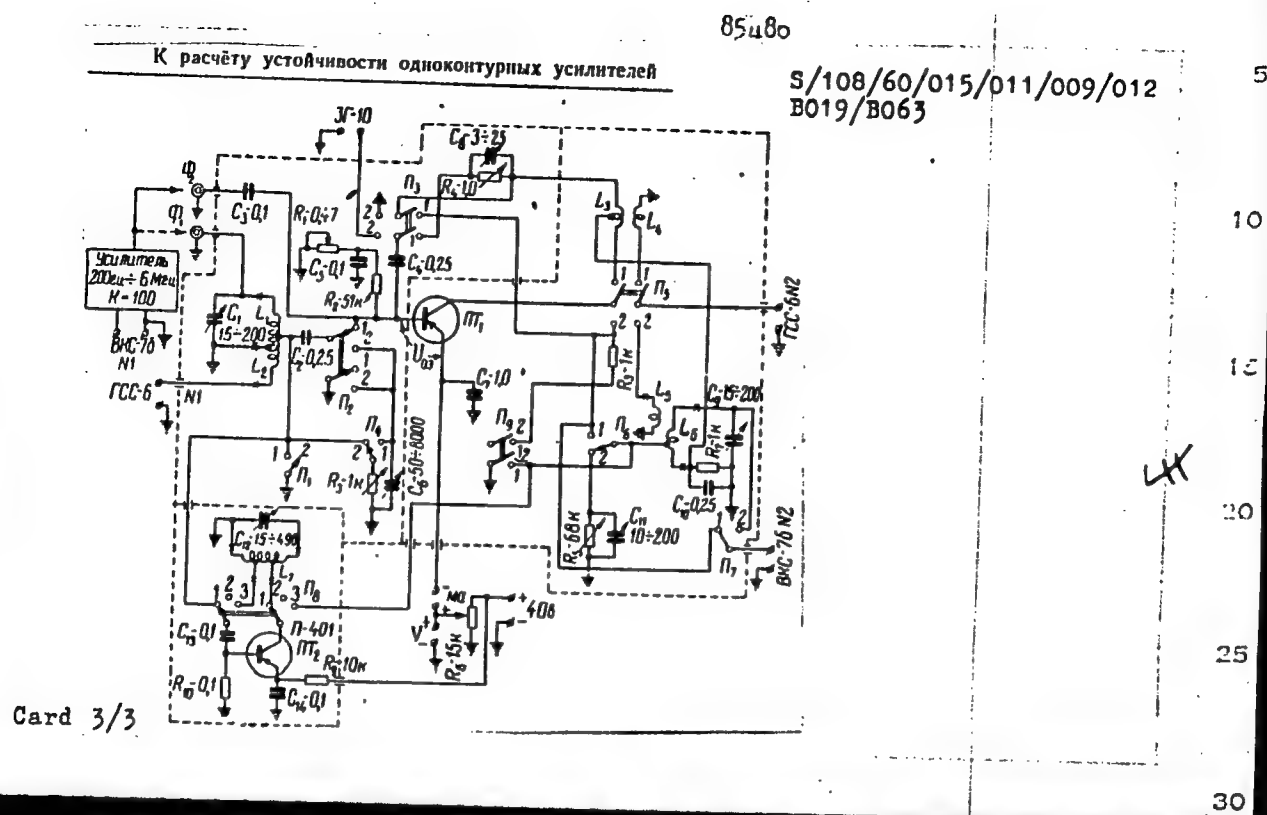
Card 1/3

LX

85486

Calculation of the Stability of a Single circuit S/108/60/0 5/0 /009/0 :
Resonance Amplifier Made of Transistors   B0 9/B06 5

Fig 4 which permits the measurement of all external transistor para-
meters and of the insertion impedance The tests were made between 00
and 500 kilocycles. Between 00 and 600 kilocycles the difference
between calculated and experimental values for the minimum negative input
impedance of a transistor having a resonant circuit in the collector
circuit was not higher than 11% This quantity did not exceed 18%
throughout this frequency range It was found that the value and the sign
of maladjustment of a collector circuit for which the input impedance of
the transistor has a negative value depends on the ratio of τ_{12} $r_2 C_{12}$

$\tau_2 = L_{21}/r_{21}$ When $\tau_{12} = \tau_{21}$ the insertion impedance is positive for
any sign and maladjustment of the collector circuit There are 4 figures
2 tables, and 9 Soviet references

SUBMITTED: May 20, 1959

Card 2/3   LX

85480

К расчёту устойчивости одноконтурных усилителей

S/108/60/015/011/009/012
B019/B063

Card 3/3

NAYDEROV, V.Z.; SIMONOV, Yu.L.

Structural stability of a linear four-terminal network. Elektro-
sviaz' 15 no.4:43-48 Ap '61.   (MIRA 14:9)
                    (Electric networks)

KRYUKOV, Yu.G.; SIMONOV, Yu.L.

Analysis of a cascaded tuned transistor amplifier. Radiotekhnika
16 no.3:54-59 Mr '61.   (MIRA 14:2)

1. Deystvitel'nyye chleny Nauchno-tekhnicheskogo obshchestva radio-
tekhniki i elektrosvyazi im. A.S.Popova.
                    (Transistor amplifiers)

32954
S/106/62/000/001/005/...
A055/A101

9.2520 (1139,1159, 1161)

AUTHORS: Kryukov, Yu.G., Simonov, Yu.L.

TITLE: Analysis of the transistorized cascode resonance amplifier of the common emitter - common base type

TEXT.   The authors give the essential results of an analysis of the cas-
code resonance amplifier of the common emitter - common base type. To simplify
the analysis, the circuit of this amplifier was replaced by an equivalent triode
circuit. The Y-parameters system was used. Multiplying the a-matrices of the
transistors and using the formulae for conversion from a-matrix elements to y-
matrix elements, the authors obtain the y-matrix of the equivalent triode. With
the aid of this matrix, they deduce the expressions giving the voltage amplifi-
cation factor of the amplifier and, in particular, its voltage amplification
factor at resonance. This last expression fully coincides with the analogous
expression for the usual single-... cde resonance amplifier with common emitter
and y-type neutralization. The cascode amplifier containing two transistors pos-
sesses approximately the same amplification properties as the usual neutralized

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3/106/62/000/001/005/009
A055/A101

Analysis of the transistorized cascode

amplifier. The authors next deduce formulae giving the input and output admit-
tances of the cascode resonance amplifier, as well as the output resistance and
capacitance of the equivalent triode. The stability conditions of the cascode
resonance amplifiers are also examined. The authors reproduce the expressions
giving the stability conditions and the limit value of stable amplification in
the cases of a one-stage amplifier and of amplifiers containing any number of
stages. At the end of the article, they briefly describe the amplifier circuit
used by them for an experimental check of the results yielded by their theoreti-
cal analysis. This check proved that the theoretical results are correct to
within about 3%. The conclusion of the authors is that, for increasing the
resonance amplifier stability at radio-frequencies, it is advisable to use the
cascode connection of a transistor with a common-emitter and a common-base type,
this mode of connection giving a much smaller inverse feedback than the
common-emitter connection. The Soviet personalities mentioned in the article
are: F.A. Shalikin, K.N. Zarmash and A.A. Ritkin. There are 3 figures, 3 ta-
bles and 6 references, 3 Soviet-bloc and 3 non-Soviet-bloc.

SUBMITTED:

Card 2/2

_lX_

AUTHOR: Simonov, Yu.L., Member of the Society (see Associa-
                 tion)

TITLE: The theory of the twin-circuit amplifier using nega-
                 tive-resistance two-terminal networks

TEXT: In using tuned amplifiers with negative-resistance
elements (parametric, tunnel-diode and other amplifiers), it is
hard to achieve both high gain and an adequate pass-band: this is
considerably easier with twin-circuit amplifiers, but their theory
has up to now been insufficiently developed. The author gives the
general principles of such amplifiers, sets up an equivalent circuit,
and derives the necessary basic design formulas; in particular he
examines the choice of transformation ratios, and shows that the
matched condition is not necessarily that for maximum overall gain.
There is 1 figure.

Card 1/2

The theory of the twin-circuit ...

S/108/62/017/011/005/007
D413/D308

ASSOCIATION: · Nauchno-tekhnicheskoye obshchestvo radiotekhniki i
elektrosvyazi im. A.S. Popova (Scientific and Tech-
nical Society of Radio Engineering and Electrical
Communications im. A.S. Popov) /Abstracter's note:
Name of Association taken from first page of jour-
nal_7

SUBMITTED: June 29, 1961   .

Card 2/2

43265

S/108/62/017/012/008/010
D413/D308

AUTHOR: Simonov, Yu. L., Member of the Society
                ~~(see Association)~~

TITLE: Contribution to the theory of tunnel-
                diode RC amplifiers

PERIODICAL: Radiotekhnika, v. 17, no. 12, 1962, 52-59

TEXT: The author briefly describes the properties
of tunnel diodes, and states that the theory of their applica-
tion has been insufficiently developed, particularly in rela-
tion to RC amplifiers. He first considers the condition for
stability of the working point on the tunnel diode character-
istic, and recommends as a balance between stability and power
consumption that the ratio of diode negative resistance to
circuit DC impedance at the point of connexion should lie bet-
ween 1.05 and 1.5. He takes two standard tunnel diode RC am-
plifier circuits, one with series and the other with parallel
connexion of the diode, sets up their equivalent circuits and

Card 1/2

Contribution ...

S/108/62/017/012/008/010
D413/D308

analyses them to obtain frequency and phase characteristics, stability limits and input impedance, in a form suitable for use in design calculations. He finds that the ratio between source impedance and diode negative resistance should be in the range 0.3 - 0.9 for the series circuit and 2 - 20 for the parallel circuit. There are 5 figures.

ASSOCIATION: Nauchno-tekhnicheskoye obshchestvo radio-tekhniki i elektrosvyazi imeni A.S. Popova (Scientific and Technical Society of Radio Engineering and Electrical Communications imeni A.S. Popov) [Abstractor's note: Name of association was taken from first page of journal.]

SUBMITTED: September 30, 1961

Card 2/2

AKULOV, I.I.; BARZHIN, V.Ya.; VALITOV, R.A.; GARMASH, Ye.N.; KUCHIN,
        L.F.; NAYDEROV, V.Z.; PUTSENKO, V.V.; SEMENOVSKIY, V.K.;
        SIMONOV, Yu.L.; TARASOV, V.L.; TEREKHOV, N.K.; SHEVYRTALOV,
        Yu.B.; YUNDENKO, I.N.; CHISTYAKOV, N.I., otv. red.; KOKOSOV,
        L.V., red.; TRISHINA, L.A., tekhn.red.

        [Theory and design of principal radio circuits using transistors]
        Teoriia i raschet osnovnykh radiotekhnicheskikh skhem na transi-
        storakh. [By] I.I.Akulov i dr. Moskva, Sviaz'izdat, 1963. 452 p.
                                                    (MIRA 16:8)
            (Transistor circuits)   (Electronic circuits)

ACCESSION NR: AP4041003   S/0106/64/000/006/0054/0062

AUTHOR: Simonov, Yu. L.

TITLE: Using tunnel diodes in transistorized tuned amplifiers

SOURCE: Elektrosvyaz', no. 6, 1964, 54-62

TOPIC TAGS: amplifier, transistorized amplifier, tunnel diode amplifier,
tuned amplifier

ABSTRACT: A theoretical analysis of a transistorized amplifier to whose circuit
a negative-resistance two-pole (tunnel diode) is connected is presented. The
maximum possible amplification of the tuned transistorized amplifier is
evaluated; design formulas for such an amplifier equipped with a tunnel diode are
developed. The nonlinearity of the current-voltage characteristic and the junction
capacitance of the tunnel diode is accounted for. It is inferred that using the
tunnel diode in a multistage tuned amplifier may, at best, halve the number of

Card 1/2

ACCESSION NR: AP4041003

stages; using the diode in a single-stage amplifier may raise its gain. The I/V
characteristic nonlinearity places certain limitations on the number of stages
where the tunnel diode is applicable and on the required stability of the power-
supply source. Similarly, the junction-capacitance nonlinearity may impose
certain restrictions in the case of RF and IF amplifiers. Orig. art. has:
3 figures and 52 formulas.

ASSOCIATION: none

SUBMITTED: 02Nov63   ENCL: 00

SUB CODE: EC   NO REF SOV: 005   OTHER: 000

Card 2/2

Ramazov, V. B., ...

Modulation of ... noise of ... with large constant signals.
Radiotekh. i ... ... 9 no.9:1990-769 S '64.

(MIRA 17:10)

SIMONOV, Yu.I.

Use of tunnel diodes in transistorized tuned amplifiers. Elektrosviaz'
18 no.6:54-62 Je '64.   (MIRA 18:1)

SIMONOV, Yu.L.

Calculation of the noise of a transistor at high frequencies.
Elektrosviaz' 18 no.8:71-73 Ag '64.   (MIRA 17:8)

L 36502-65   EEC(b)-2/EEC(k)-2/EWA(h)/EWT(1)/EWG(m)/T   Pm-4/Pz-6/Peb   IJP(c)

S/0109/65/010/003/0443/0448   25

B

ACCESSION NR: AP5007089

AUTHOR: Simonov, Yu. L.

TITLE: Theory of a tunnel-diode crystal-stabilized oscillator with a constant-impedance circuit

SOURCE: Radiotekhnika i elektronika, v. 10, no. 3, 1965, 443-448

TOPIC TAGS: tunnel diode oscillator, semiconductor oscillator

ABSTRACT: The results of a theoretical analysis of a quartz-stabilized tunnel oscillator with a constant-impedance circuit (Watters, Electronics, 1961, 39) are presented. The conditions of self-excitation with and without crystal are obtained by examining an a-c equivalent circuit. Formulas for output power, diode-voltage amplitude, bias voltage and bias current are derived. The effect of the diode junction capacitance on the oscillator frequency stability is studied; the minimum junction capacitance ensures the highest frequency stability. To compensate for

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L 36502-65

ACCESSION NR: AP5007089

temperature variations, it is recommended that the tunnel diode be shunted with a capacitor whose temperature coefficient of capacitance (TCC) has a reverse sign as compared to the TCC of the diode. Orig. art. has: 2 figures and 32 formulas.

ASSOCIATION: none

SUBMITTED: 20Jan64   ENCL: 00   SUB CODE: EC

NO REF SOV: 006   OTHER: 000

Card 2/2

SIMONOV, Yu.L.

Parameters of a tunnel diode for large harmonic signal operation.
Radiotekhnika 20 no.4:62-65 Ap '65.

(MIRA 18:6)

1. Deystvitel'nyy chlen Nauchno-tekhnicheskogo obshchestva radio-
tekhniki i elektrosvyazi imeni Popova.

AKULOV, I.I.; BARZHIN, V.Ya. VALITOV, R.A.; GARMASH, Ye.N.;
KUCHIN, L.F.; NAYDEROV, V.Z.; PUTSENKO, V.V.;
SEMENOVSKIY, V.K.; SIMONOV, Yu.L.; TARASOV, V.L.;
TEREKHOV, N.K.; SHEVYRTALOV, Yu.B.; YUNDENKO, I.N.;
CHISTYAKOV, N.I., prof., otv. red.; KOKOSOV, L.V., red.

[Theory and design of basic radio circuits using
transistors] Teoriia i raschet osnovnykh radiotekhniche-
skikh skhem na tranzistorakh. Moskva, Sviaz', 1964.
454 p.   (MIRA 18:8)

L 34047-66   EWT(1)/EEC(k)-2/T   IJP(c)

ACC NR: AP6025468   SOURCE CODE: UR/0108/66/021/004/0049/0055

AUTHOR: Simonov, Yu. L. (Active member)

ORG: Scientific-Technical Society of Radio Technology and Electrocommunications im.
A. S. Popov (Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi)

TITLE: Power and efficiency of a tunnel diode oscillator

SOURCE: Radiotekhnika, v. 21, no. 4, 1966, 49-55

TOPIC TAGS: tunnel diode, electronic oscillator, approximation calculation, oscil-
lator strength

ABSTRACT: An analysis of the problems connected with calculation of
the oscillating power of a self-excitation oscillator based on a
TD (Tunnel Diode; Tunnel'niy Diod in Russian). In the past, various
authors have used various methods to calculate the Υ-factor for this
type of oscillator: piecewise discontinuous, third degree parabola,
straight line sectors and second degree parabola. This has resulted in
production of various values of Υ, the most accurate of which has been
shown by experiment to be 1/8, which can be used to produce a systematic
error in the form of a 10-30% increase. Like the previous authors
on the subject, Simonov does not use the available accurate analytic
approximations, due to the huge volume of computation required, but
attempts rather to use the most suitable rough approximations. Orig. art. has:
1 figure and 19 formulas. [JPRS: 36,087]

SUB CODE: 09, 12 / SUBM DATE: 27Jan64 / ORIG REF: 004
                                                     UDC: 621.373.53
Card 1/1

L 40047-66   ENT(1)

ACC NR: AP6023885   SOURCE CODE: UR/0109/66/011/007/1345/1346

47
B

AUTHOR: Simonov, Yu. L.; Fayner, A. I.

ORG: none

TITLE: Possibility of designing tunnel-diode cascade frequency multipliers without intermediate amplifiers

SOURCE: Radiotekhnika i elektronika, v. 11, no. 7, 1966, 1345-1346

TOPIC TAGS: tunnel diode, frequency multiplication

ABSTRACT: The shape of static characteristic of a tunnel diode is close to the quadratic parabola, which permits such an operation of the diode frequency doubler that its first-harmonic input power is much smaller than its second-harmonic output power. A Fourier series expansion and curves based on it illustrate the above point. An experimental cascade multiplier designed with two 3I301A GaAs tunnel diodes (maximum current, 2 ma) raised the frequency from 50 kc to 200 kc with an input voltage of 0.1 v and output, 0.5 v. Orig. art. has: 4 figures and 4 formulas. [03]

SUB CODE: 09 / SUBM DATE: 25Jan65 / ORIG REF: 001 / ATD PRESS: 5052

UDC: 621.374.4

Card 1/1

L 0.141-07   EWT(1)/EWT( )/   WH

ACC NR: AP6023857   SOURCE CODE: UR/0108/66/021/007/0039/0043

AUTHOR: Simonov, Yu. L. (Active member)

ORG: Scientific and Technical Society of Radio Engineering and Electrocommunication
im. A. S. Popov (Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi)

TITLE: Quartz-stabilized tunnel-diode oscillator

SOURCE: Radiotekhnika, v. 21, no. 7, 1966, 39-43

TOPIC TAGS: electronic oscillator, crystal oscillator, tunnel diode

ABSTRACT: A quartz-crystal-stabilized tunnel-diode oscillator is theoretically
analyzed, in which an oscillatory circuit made up from an external inductance and the
diode-junction capacitance acts as a resistance transformer. The conditions of
oscillator operability are established, and design formulas (power, efficiency) are
deduced. It is found that the use of higher (than 0.9--1.2 v) supply voltages and
high values of the safety factor (that ensures operating-point stability) cannot be
recommended as they result in lower efficiency and higher power consumption. The
oscillator has fewer components but apparently inferior frequency-stability than the
Nagle and Watters oscillators. Orig. art. has: 1 figure and 34 formulas.

SUB CODE: 09 / SUBM DATE: 20Mar64 / ORIG REF: 005

UDC: 621.382.233

Card 1/1

SIMONOV, Yu.M., assistent

Discontinuous spraying of a biofilter in a sprinkler system. Sbor. trud. LIIZHT no.185:144-146 '62.

Analysis of the spraying of the surface of a biofilter by distributers in the form of overshot wheels.   Ibid.:146-153.   (MIRA 17:1)

SIMONOV YuN

| | | CARD 1 / 2 | PA - 1531 |

SUBJECT   USSR / PHYSICS
AUTHOR   KAZARINOV,JU.M., SIMONOV,JU.N.
TITLE   The Elastic Scattering of Neutrons by Protons at an Energy of
            580 MeV.

PERIODICAL Žurn.eksp.i teor.fis,31, fasc.2, 169-173 (1956)
            Issued: 5.10.1956

Here the differential cross sections of such a scattering within the angular
range of from 35 to 180° (in the center of mass system) are measured.
Test order: The differential cross sections in the interval of the scattering
angles $\vartheta = 35,5$ to 180° (in the center of mass system) were measured by re-
gistering the recoil protons produced by elastic (n-p) collisions. On this
occasion the difference between the number of paraffin ($CH_{2,09}$) and graphite
(C) scatterers (fitted to the neutron bundles) in the angles $\vartheta = 0 - 70^\circ$ was
determined. The energy distribution of the neutrons in the bundle has a maximum
at 600 MeV and a half width of ~ 130 MeV. As scatterers paraffin and graphite
disks were used with different slowing down power for the recoil protons. The
detector consisted of three scintillation counters connected in coincidence and
working on the basis of tolane crystals and photomultipliers. The absolute
values of the differential cross sections of (n-p) scattering were determined
by the normalization of the obtained energy distribution of the recoil protons
with respect to the total cross section of the elastic scattering of neutrons
by protons.

tributions made by exchange- and ordinary interaction to the total cross section
of elastic scattering are of the same order. The anisotropy of scattering in-
creases with increasing energy. Conclusions: The data obtained are not in
contradiction to the charge independence hypothesis. At 580 MeV

The states of the (n-p) system with the isotopic spins T = 0 and T = 1
contributions $\sigma_{T=0}(90^\circ) = 1.10^{-27}$ cm^2/steread and $\sigma_{T=1}(90^\circ)= 3.10^{-27}$ cm^2/steread
to the cross section of scattering under $\vartheta = 90^\circ$. This may be due to the
existence of a very strong interaction in these two states. The marked asymmetry
of the $\sigma_{np}(\vartheta)$ with respect to the angle of 90° indicates that the interference
of the waves corresponding to the states T = 0 and T = 1 influences the charac-
ter of scattering considerably. This asymmetry is apparently the result of the
interaction between two nucleons in the states of the system with high orbital
momenta l > 2. The lack of a relativistic scattering theory prevents a rigo-
rous interpretation of these data. The angular distribution $\sigma_{np}(\vartheta)$, which
was found in nonrelativistic approximation, is explicitly given.

INSTITUTION: Institute for Nuclear Problems of the Academy of Science in the
             USSR.

Simonov, Yu. N.

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19

2

ELASTIC SCATTERING OF NEUTRONS BY 580 MEV PRO-
TONS. Iu. M. Kazarinov and Iu. N. Simonov (Academy of
Sciences, USSR). Soviet Phys. JETP 4, 161-4(1957) March.
    Differential cross sections were measured for elastic
scattering of neutrons by 580-Mev protons in the angular
region $\theta = 35$ to $180°$ (in the system of the center of inertia)
with a $2°$ angular resolution. The character of the obtained
$\sigma_{np}(\theta)$ dependency indicates that at ~ 600 Mev there arises
in the neutron-proton system a noticeable interaction in
states with orbital moments up to $l \approx 6$. The results obtained
do not contradict the hypothesis of charge independences.
(auth)

AUTHORS: Kazarinov, Yu. M., Simonov, Yu. N.   SOV/56-35-1-16/59

TITLE: Measurement of the Total Production Cross Section of
                Charged π-Mesons in n-p Collisions at Neutron Energies
                of 586 MeV(Izmereniye polnogo secheniya obrazovaniya
                zaryazhennykh π-mezonov v n-p-stolknoveniyakh pri energii
                neytronov 586 MeV)

ABSTRACT: The production of charged pions in n-p collisions has been
                comparatively only little investigated (Ref 1; E_n=409 MeV;
                Ref 2 - $E_n \sim$ 600 MeV, E_p = 760 MeV, method of nuclear
                emulsions, π^+-π^--spectra at ϕ=90°(laboratory system), targets
                of pure hydrogen). The present paper deals with the de-
                termination of the total yield of charged pions within
                an angular range of 15 to 120° at effective E_n=586 MeV.
                The experiments were carried out on the synchrocyclotron
                of the Ob"yedinennyy institut yadernykh issledovaniy
                (United Institute of Nuclear Research). The energy
                distribution of the neutrons in the beam had a maximum
Card 1/3

Measurement of the Total Production Cross Section of   SOV/56-36-1-10/59
Charged π-Mesons in n-p Collisions at Neutron Energies of 566 MeV

at 600 MeV (half width 150 MeV). For the purpose of
determining the differential cross section of the production
of charged pions in n-p collisions the ratio between the sum
of π^+ and π^--mesons N_π and the number of recoil protons
N_p was investigated in dependence on ϕ. (ϕ = angle of
incidence of the neutron beam inciding on to the target).
The experimental arrangement is shown by figure 1.
The neutron beam passes through the monitor (ionization
chamber and impinges on the scatterer. Beside the latter
(at a certain angle to **the** original direction of the beams)
is the radiator of the Cherenkov counter between 2
scintillation counters, and behind a filter there is the 3rd
counter. For the separation of the pions various types of
detectors were used: A Cherenkov counter was used for ϕ = 15°
and 30° with two scintillation counters connected in coin-
cidence, for ϕ = 45° a Cherenkov counter (plexiglass) + 2
scintillation counters in coincidence, and for ϕ = 60, 90, 120°
3 scintillation counters in coincidence were used. Assuming
the charge symmetry of the nuclear forces $\sigma(np \rightarrow \pi^+)=\sigma(np \rightarrow \pi^-)=$
Card 2/3 $(2,0 \pm 0,5).10^{-27} cm^2$., was obtained ($\phi$ is always given in

Measurement of the Total Production Cross Section of   SOV/56-35-1-1o/59
Charged π-Mesons in n-p Collisions at Neutron Energies of 586 MeV

the laboratory system). In conclusion the authors thank
I. I. Lapidus for discussing the results and **N.S.Amaglobeli**
for his assistance in carrying out the work.There are 5
figures, 2 tables, and 12 references, 8 of which are Soviet.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy, Laboratoriya
yadernykh problem(United Institute of Nuclear Research,
Laboratory for Nuclear Problems)

SUBMITTED: February 27, 1958

Card 3/3

KAZARINOV, Yu. M., SIMONOV, Yu. N.

"π-Meson Production in np Collisions at 400-600 Mev"

report presented Intl. Conference on High Energy Physics, Geneva,
4-11 July 1962

Joint Institute for Nuclear Research
Laboratory of Nuclear Problems

KAZARINOV, Yu.M.; SIMONOV, Yu.N.; SARANTSEVA, V.R., tekhn. red.

[Neutron-proton scattering at a neutron energy of 200 Mev]
N-P-rasseianie pri energii neitronov 200 Mev. Dubna, Ob"e-
dinennyi in-t iadernykh issl., 1962. 11 p.   (MIRA 15:4)
   (Neutrons--Scattering)   (Protons)

S/056/62/043/001/006/056
B125/B102

AUTHORS: Kazarinov, Yu. M., Simonov, Yu. N.

TITLE: np scattering of 200-Mev neutrons

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43,
no. 1(7), 1962, 35-39

TEXT: A neutron beam was obtained from stripping reactions induced by
400-Mev deuterons extracted from the OIYaI synchrocyclotron. The energy
distribution of the neutrons was symmetric about its maximum at $E_n = 192$ Mev.

The differential cross section obtained by recording the recoil protons
scattered through recoil angles $0 \leq \Phi \leq 55^0$ (laboratory system) using a
telescope of four scintillation counters decreases with a gradually
decreasing slope from $\sim 9.5 \cdot 10^{-27}$ cm^2 $sterad^{-1}$ at $\sim 10^0$ to its minimum
value ($\sim 2 \cdot 10^{-27}$ cm^2 $sterad^{-1}$) at $\vartheta \sim 83^0$, whereupon it increases to
$11 \cdot 10^{-27}$ cm^2 $sterad^{-1}$ at $\sim 170^0$, first slowly and then rather steeply.
This angular distribution is appreciably asymmetric with respect to
$\vartheta = 90^0$. The total cross section σ_t for the scattering of neutrons from
Card 1/2

np scattering of 200-Mev neutrons

protons, determined from the difference between neutron absorption in polyethylene disks and that in graphite disks, was found to be $(42.7 \pm 0.9) \cdot 10^{-27}$ cm^2. The pion-nucleon interaction constant f^2 as calculated from measurements of the angular distribution of the scattered particles is 0.06 ± 0.02. At energies of 90 and 200 Mev, the real part of the scattering amplitude makes a great contribution to the cross section for scattering through an angle of $0°$. There are 3 figures.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: February 20, 1962

Card 2/2

L 45655-65   EWT(m)/T/EWA(m)-2
ACCESSION NR: AP5009830

AUTHOR: Kazarinov, Yu. M.; Satarov, V. I.; Simonov, Yu. N.

TITLE: Total cross section for the interaction of 630-MeV neutrons with protons and carbon nuclei

SOURCE: Yadernaya fizika, v. 1, no. 2, 1965, 271-273

TOPIC TAGS: neutron proton interaction, neutron carbon interaction, nucleon nucleon interaction, interaction cross section, elastic scattering, scattering cross section

ABSTRACT: Total cross sections for the interaction of neutrons of mean effective energy 630 MeV with protons and carbon nuclei have been measured by the neutron beam attenuation method. The purpose of the measurement was to gain data on the total elastic np cross section, which cannot be measured directly, and to obtain other information useful in the phase-shift analysis of elastic nucleon-nucleon scattering data in the region above threshold. The neutron beam was attenuated by inserting absorbers of the materials to be investigated. The experimental set-up was the same as used by Dzhelepov et al. (DAN SSSR v. 104, 717, 1955). The values

Card 1/2

L 45655-65
ACCESSION NR: AP5009830   /

obtained for the total cross section of the np and nC reactions are $(35.2 \pm 0.9) \times$ $\times 10^{-27}$ and $(324.0 \pm 1.5) \times 10^{-27}$ cm^2, respectively. It is deduced from these val-ues that the imaginary part of the forward elastic NN scattering amplitude is equal to $(0.77 \pm 0.02) \times 10^{-13}$ cm. Orig. art. has: 1 figure and 1 formula.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: 28Sep64   ENCL: 00   SUB CODE: NP

NR REF SOV: 004   OTHER: 000

Card 2/2

SIMONOV, Yu.S.

New developments in washing gravel and crushed stone for making
cement. Stroi.i dor.mash. 7 no.2:33 F '62.   (MIRA 15:5)
(Aggregates (Building materials))

SIMONOV-YEMEL'YANOV, Yu.A.

Determination of the nature of the minimum boundaries of
stability for complex pressure hydraulic systems. Izv.Kar. i
Kol'.fil.AN SSSR no.4:54-66 '58.   (MIRA 12:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut gidrotekhniki
im. B.Ye.Vedneyeva.
                   (Hydraulic engineering)

SIMONOV-YEMEL'YANOV, Yu. A.

Cand Tech Sci - (diss) "Study of the behavior of near-boundary areas of stability of complicated supporting hydraulic systems with leveling reservoirs." Moscow, 1961. 11 pp; (Ministry of Higher and Secondary Specialist Education RSFSR, Moscow Power Inst); 150 copies; free; bibliography at end of text (10 entries); (KL, 7-61 sup, 245)

MOTYCKA, K.; SOUCEK, J.; SLAVIK, K.; JIRASEK, J.; JIRASEK, A.; Technical
assistance: SMETANOVA, R.; PRANTOVA, L.; SIMONOVA, A.

The treatment of experimental mouse hemoblastosis. I. The effect
of some new folic acid antimetabolites on cell transplanted leu-
kemia in mice of the AKR strain. Neoplasma (Bratisl.) 11 no.4:
389-397 '64.

1. Institute of hematology and blood transfusion, Prague, Labora-
tory of protein metabolism and proteosynthesis, Charles University,
Prague, I-st pathological-anatomical institute, Charles University,
Pregue, Czechoslovakia.

, A.; ... B., ...; MATUL, B.; ... unites' auxiliary : .... , A.;
F ... VA, I.; ... VA, A.

The treatment of experimental mouse hemoblastosis. II. The effect
of long-term administration of some folic acid antagonists in
mice of the AKR strain. Neoplasma (Bratisl.) ... no...:766-772 '...

.. Institute of hematology and blood transfusion, ..., laboratory
of protein metabolism and proteosynthesis, Charles University, Prague,
... (Czechoslovakia).

. SIMONOVA, A.A.

Prevention of industrial eye injuries at Kuznetsk Metallurgical
plants. Vest. oft. 73 no. 5:3-8 S-0 '60.   (MIRA 14:1)
      (EYE—WOUNDS AND INJURIES)
         (KUZNETSK—STEEL INDUSTRY—SAFETY MEASURES)

SIMONOVA, A. A.

- Children - Diseases

Effect of the Kislovodsk treatment of children with rheumatic heart diseases upon the hydrophil tissue test administered during interparoxysmal stages. Pediatriia, No. 4, 1952.

9. Monthly List of Russian Accessions, Library of Congress, __December__ 1956, Uncl.
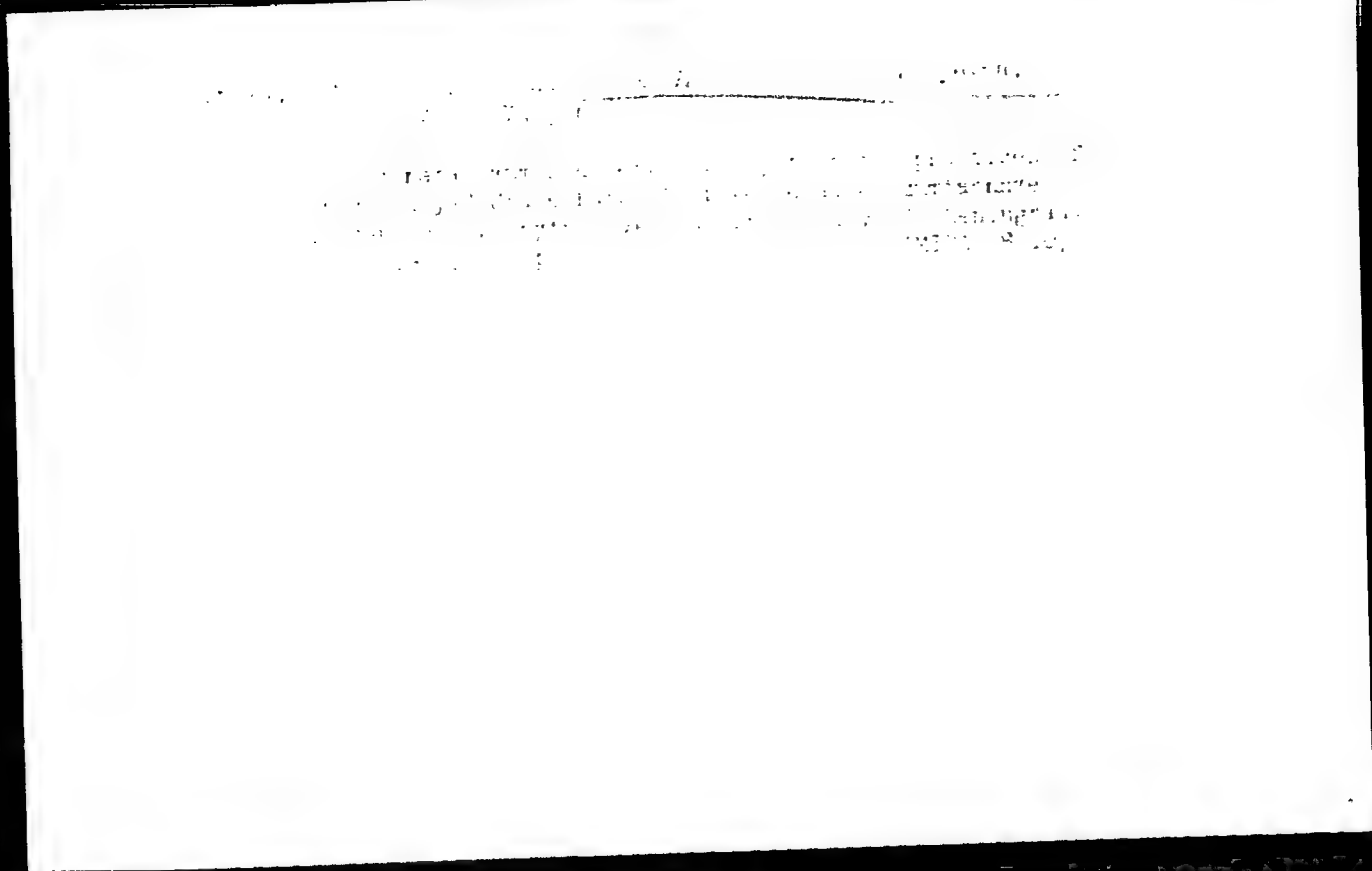
SIMONOVA, A.G.

Effect of growth promoting substance of petroleum origin
on the renal epithelium culture. Izv. AN Kazakh. SSR. Ser.
biol. nauk 3 no.6:75-82 N-D '65.   (MIRA 18:12)

1. Institut eksperimental'noy biologii AN KazSSR.

VIL'KOVYSKAYA, G.B.; MURONETS, I.I.; PUCHKOV, S.V., kand.fiz.-mat.nauk;
  KRAVCHENKO, I.M., red.; SIMONOVA, A.I., red.; MANOLE, M.G., red.;
  KOLESNIKOVA, A.P., tekhn.red.

[German-Russian geophysical dictionary] Nemetsko-russkii geo-
fizicheskii slovar'. Pod red. I.M.Kravchenko, A.I.Simonova.
Moskva, Gos.izd-vo fiziko-matem.lit-ry, 1959. 409 p. (MIRA 12:5)
        (German language--Dictionaries--Russian)
            (Geophysics--Dictionaries)
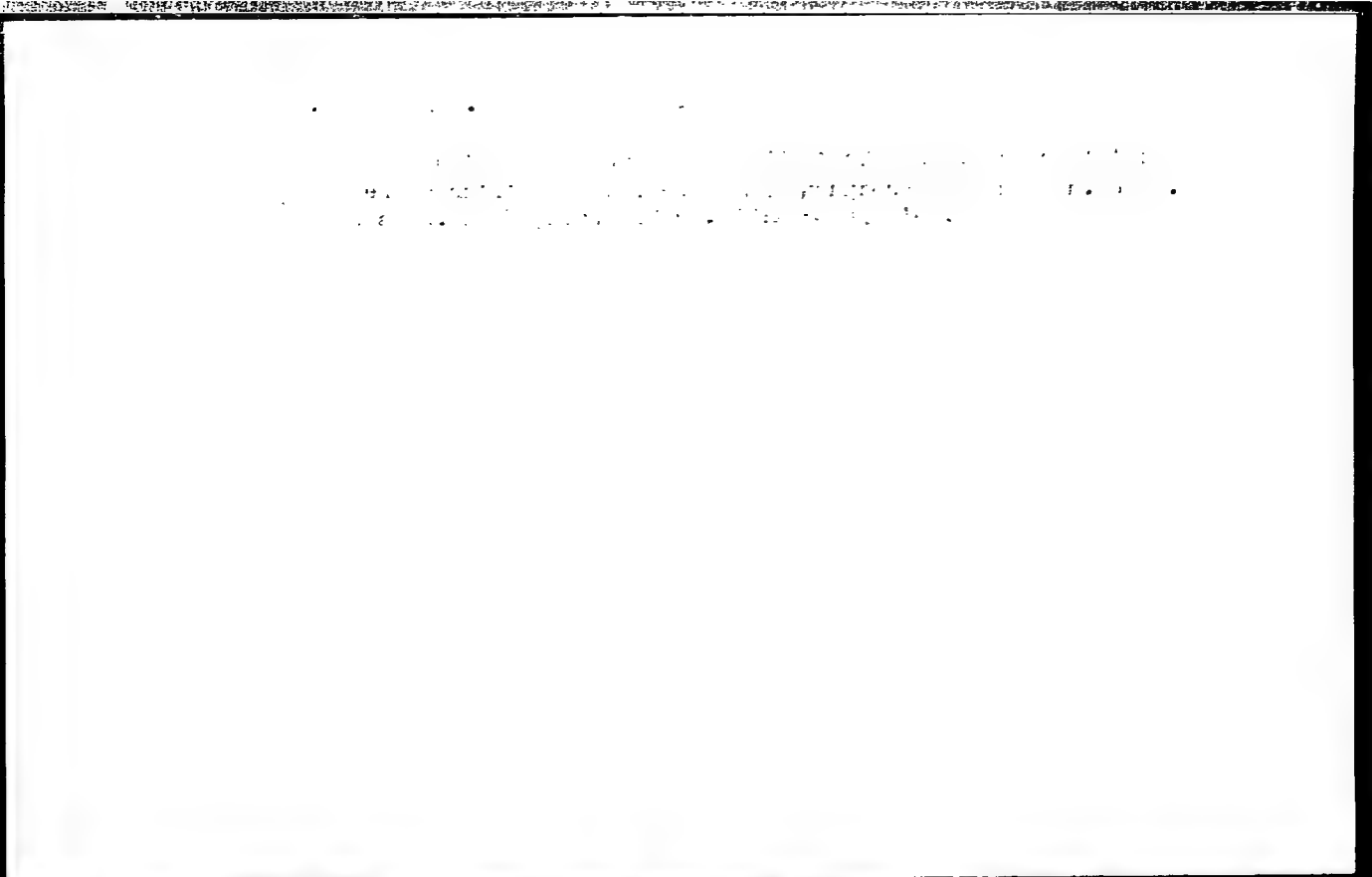
KOZLOV, N.S.; SIMONOVA, E.V.

Catalytic synthesis of β-arylaminoketone nitro derivatives.
Zhur. org. khim. 1 no.9:1638-1640 S '65.

Activity of aliphatic aromatic ketones. Ibid.:1641-1642
(MIRA 18:12)

1. Permskiy sel'skokhozyaystvennyy institut. Submitted
July 16, 1964.

GIMPELEVICH, E.D.; SIMONOVA, E.Ya.

Method for fast determination of organic carbon in rocks. Trudy
VNIGNI no.11:278-283 '58.   (MIRA 13:1)
              (Rocks--Analysis) (Carbon)

GORLOV, N.V.; SIMONOVA, G.F.

Genesis of mica-bearing pegmatites in the northwestern White Sea
region. Zap. Vses. min. ob-va 86 no.6:671-681 '57.   (MIRA 11:3)

1. Laboratoriya geologii dokembriya AN SSSR i Trest Lengeolnerud.
(White Sea region--Pegmatites)

20-117-5- 41/54

AUTHORS: Gorlov, N. V. , and Simonova, G. F.

TITLE: The **Laws** Governing the Distribution of Muscovite in Pegmatites of
             the **Northwestern**   White-Sea Coast (Zakonomernosti razmeshcheniya
             muskovita v pegmatitakh severo-zapadnogo Belomor'ya)

PERIODICAL: Doklady AN SSSR, 1957, Vol. 117, Nr 5, pp. 874 - 877 (USSR)

ABSTRACT: The archaic micaceous pegmatites of North Carelia in the south
             west of the Kol'skij-peninsula differ considerably from the common
             practically binary pegmatites of the pure line ("chistoy linii")
             in their inner structure as well as in the mineral composition.
             On the strength of the composition of the feldspars (reference 1)
             the pegmatites are subdivided into I) plagioclase pegmatites,
             II) mixed (with plagioclase and microcline), and III) microcline
             plagioclase. Sometimes subtypes are separated according to the
             ratio of the two components. According to the own and foreign pre-
             sent data the authors could find a dependence of the spatial dis-
             tribution of the development degree of the muscovite on the inner
             structure and on the composition of the veins which belong to the
             above-mentioned types and subtypes. Furthermore general rules go-
             verning the development of the micaceous pegmatite vein could be
Card 1/3   indicated from the simple up to differentiated and zonal ones. They

20-117-5- 41/54

The **Laws**   Governing the Distribution of Muscovite in Pegmatite of the North-
western White-Sea Coast

facilitate the considering of each single type or subtype as the
reflection of one of the stages of the formation process of a mix-
ed and micaceous vein of complicated structure. The task of the
present paper is the systematization of this experience. The main
mass of the muscovite is coalesced with quartz as quartz muscovite
aggregate. I) Type - plagioclase veins. They are comparatively
poor in minerals. Beside plagioclase and quartz as well as musco-
vite occur as admixtures: garnet, tourmaline, biotite, and apatite.
These veins can be micaceous or binary. The first can be subdivid-
ed into two subtypes: 1) with muscovite in the axial part, 2) in
the axial and contact-near part. II) Type - veins of mixed compo-
sition. They are most distributed in Carelia and in the Kol'skiy-
peninsula. The mineral composition is more complicated here: beside
the admixtures mentioned at I) various rare minerals occur, like al-
bite and mica of later generations. The inner structure is as a
rule zonal and differentiated. The zones correspond to the above-
-mentioned subdivisions. A) Veins consisting chiefly of plagioclase.
They contain microcline in imperceptible quantities and have the
same structure as the type I). B) Plagioclase-microcline veins.
Here the plagioclase quantities are approximatively equal to the
microcline quantities. C) Veins consisting chiefly of microcline.

Card 2/3

FINKEL', L.A.; SIMONOVA, G.P.

Organization work and small-scale mechanization of operations in
cocoon drying. Izv.vys.ucheb.zav.; tekh.tekst.prom. no.6:3-9 '60.
(MIRA 14:1)

1. Uzbekskiy nauchno-issledovatel'skiy institut shelkovodstva.
(Uzbekistan--Sericulture)

SIMONOVA, G.V.; ROZOVSKAYA, M.I.; FARBER, Yu.D.

Experience in tuning trunk lines condensed with V-12 apparatus.
Vest.sviazi 14 no.9:18-20 S '54.   (MLRA 7:10)

1. Glavnyy inzhener Montazhno-izmeritel'nogo upravleniya tresta
"Mezhgorsvyaz'stroy." (for Simonova) 2. Inzhenery Montazhno-
izmeritel'nogo upravleniya (for Rozovskaya, Farber).
        (Telephone lines)

SIMONOVA, I.

SIMONOVA, I.A.

Combined treatment of cancer of the larynx. Zhur. ush., nos. i
gorl.bol. 23 no.3:9-13 My-Je'63.   (MIRA 16:7)

1. Iz kafedry boleaney ukha, gorla i nosa (zav.-dotsent A.Ya.
Chebotarev) Novokuznetskogo instituta usovershenstvovaniya
vrachey.
                    (LARYNX—CANCER)   (LARYNX—SURGERY)
                          (RADIATION THERAPY)

OSITYANSKAYA, L.Z.; SIMONOVA, I.I.

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containing thionic and thiolic bonds. [Trudy] NIUIF no.171:
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(Spectrum analysis) (Insecticides)
(Phosphorus organic compounds)

BENSON, Mikhail Il'ich, inzh.; BEREZIN, Nikolay Tikhonovich,
inzh.; GURNI, Varvara Pavlovna, kand. tekhn.nauk;
LYUBOVSKIY, Grigoriy Abramovich, inzh.; MARTIROSYAN,
Yelena Mikirtychevna:PROGOROVICH,Anna Lazarevna,
kand. tekhn. nauk; SIMONOVA, Irina Mikhaylovna, inzh.;
YEFREMOVA, M.K., red.; GOLOVINA, N.Z., red.; AKSEL'ROD,
I.Sh., tekhn. red.

[English-Russian dictionary of the food industry] Anglo-
russkii slovar' po pishchevoi promyshlennosti. Moskva,
Fizmatgiz, 1963.   570 p.   (MIRA 17:1)

BOYKO, A.A., red.; BURSHTEYN, G.Ya., doktor ekon. nauk, retsenzent;
     LIR, Yu.S., kand. ekon. nauk, retsenzent; SKOGOREV, V.A.,
     retsenzent; SIMONOVA, I.Ya., retsenzent; GOLUBYATNIKOVA, G.S.,
     red.izd-va; IL'INSKAYA, G.M., tekhn. red.; LAVRENT'YEVA,L.G., tekhn.
     red.
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     technical, industrial and financial plan] Planirovanie v ugol'-
     noi promyshlennosti; spravochnik po razrabotke Tekhpromfinplana.
     Moskva, Gosgortekhizdat, 1963. 342 p.   (MIRA 16:12)
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GERM

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Water-soluble substances of flour in relation to the baking characteristics of the various kinds of wheat. D. I. Terpugov and K. P. Simonova (Agrl. Inst., Voronezh, U.S.S.R.). Selekisiya i Semenovodstvo 18, No. 8, 19-23 (1951); Chem. Zentr. 1952, 1250.—Expts. reported show that a direct relation exists between the water-sol. content of the flour and the fermentative activity of the dough, as well as between the latter and the principal factor detg. the baking quality of the flour, i.e., the vol. of the dough. Therefore, flours can be judged and classified on the basis of their contents in water-sol. substance. Protein content should also be considered in rating a flour.   M. O. M.

SUSHKO, V.; SIMONOVA, L.

Urgent descent of the Il-18 airplane. Grazhd. av. 20 no.10:
18-19 0 '63.   (MIRA 16:12)

USSR/Microbiology - Microbiology Pathogenic to Humans and
            Animals.   F-4

Abs Jour   : Ref Zhur - Biol., No 12, 1958, 52848

Author   : Prokhorov, M.I., Simonova, L...
Inst   : -
Title   : New Media for Cultivating Bacteira for Control of
              Harmful Rodents and Insects.

Orig Pub : Byul. nauchno-takhn. inform. po s.-kh. mikrobiol., 1957,
              No 3, 28-30.

Abstract : No abstract.

Card 1/1

PROKHOROV, M.I.; SIMONOVA, L.A.

Experiments in testing new media for bacterial cultures used in
the control of injurious rodents and insects. Trudy Vses. inst.
sel'khoz. mikrobiol. no.14:333-343 '58.   (MIRA 15:4)
            (Bacteriology—Cultures and culture media)
                    (Rodentia—Biological control)
    (Insects, Injurious and beneficial—Biological control)

SI_____, I.b., ___ __ Sci--(____) "_____ _____ r_____
__ ___ _____ region." ___, 19__. 1_ __ (_____ __ _____ of Lenin
__ ____ __ __ S__ ___), __ ____ _ (__,_ -__,___)

SIMONOVA, L.B. (Moskva, B-93, Arsen'yevskiy per., d.2, kv.9)

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1. Kafedra operativnoy khirurgii i topograficheskoy anatomii
(zav.-prof. V.V. Kovanov) I Moskovskogo ordena Lenina meditsinskogo
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(BUTTOCKS, anat. & histol
deep subcutaneous tissue space (Rus))

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Topography of the suprapyriform foramen. Arkh.anat.gist.i embr.
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(zav. - prof.V.V.Kovanov) I Moskovskogo ordena Lenina meditsin-
skogo instituta im. I.M.Sechenova.
                    (PELVIS anat & histol)

CHISTOV, A.D.; BAZARNOVA, G.V.; BEK, N.D.; BELIKOVA, V.I.; BLINOVA, M.Ya.;
KABANOVA, P.G.; MAKAROVA, M.D.; PRIPISTSOVA, K.D.; SIMONOVA, L.F.;
TOLKACHEVA, Ye.M.; TYUNYAYEVA, V.V.; ZINCHENKO, V.S., red.izd-va;
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[Foreign trade of the U.S.S.R. for 1918-1940; statistical survey]
Vneshniaia torgovlia SSSR za 1918-1940 gg.; statisticheskii obzor.
Moskva, Vneshtorgizdat, 1960. 1134 p.   (MIRA 13:10)

1. Russia (1923- U.S.S.R.) Glavnoye tamozhennoye upravleniye.
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vneshney torgovli SSSR (for all, except Zinchenko, Pavlovskiy).
            (Commercial statistics)

SIMONOVA, L.F.,inzh.; KISaROV, G.N.,inzh.

Consultation. Tekst.prom. 20 no.10:86 0'60.   (MIRA 13:11)
                        (Textile machinery)

MENYUK, N.S.; SIMONOVA, L.G.

Preliminary data on the acclimatization of the Peipus lavaret
(Coregonus lavaretus maraenoides Poljakov) in Lake Pulemetskoye.
Vop. ikht. 2 no.2:367-370 '62.   (MIRA 15:11)

1. Ukrainskiy nauchno-issledovatel'skiy institut rybnogo khozyaystva
(UASKhN), Kiyev.
                          (Pulemetskoye, Lake—Whitefishes)
                          (Animal introduction)

NEVSKIY, V.A.; SIMONOVA, L.I.

Nontectonic joints of some rocks in the upper Kurgan Basin.
Izv. AN SSSR. Ser.geol. 27 no.7:19-27 Jl '62.   (MIRA 15:6)

1. Institut geologii rudnykh mestorozhdeniy, petrografii,
mineralogii i geokhimii AN SSSR, Moskva.
                    (Kurgan Valley--Joints (Geology))

GIBANOVA, L.I.

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(MIRA 18:8)

BALODIS, M. K.; BONDARENKO, V. A.; PROKOF'YEV, P. T.; SIMONOVA, L. I.

"The Spectrum of Electrons of Internal Conversion of In^{116} Following Capture of Thermal Neutrons."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22 Feb 64.

IF AS LatvSSR (Inst Physics, AS LatvSSR)

L 19461-65   EWT(m)/EWP(t)/EWP(b)   IJP(c)   JD

ACCESSION NR: AP4044671   S/0120/64/000/004/0084/0086

AUTHOR: Wang, Ts'ien-wa; Sidorov, A. I.; Sidorova, L. P.; Simonova, L. I.

TITLE: Method of producing silicon spectrometric detectors with a broad region
of the sensitive layer   27, 27

SOURCE: Pribory* i tekhnika eksperimenta, no. 4, 1964, 84-86

TOPIC TAGS: spectrometric detector, silicon spectrometric detector

ABSTRACT: The development of detectors from Si compensated with Li and
having practically no dead layer is reported. The detectors are based on a "new
phenomenon" observed by the authors in the course of their experiments with
drifting Li ions in Si. At a temperature of 125C and lower and at a voltage over
200 v, the entire high-resistance region had electron-type conductivity. This fact
facilitates bringing the space-charge layer to the surface; after removing a thin
p-region, a surface-barrier junction can be created by spraying gold. The

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ACCESSION NR: AP4044671

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resulting material has a very high resistivity. A theoretical explanation of the phenomenon is offered. "The authors wish to thank B. M. Golovin, B. P. Osipenko and I. V. Sizov for their interest in the work, and also to thank other workers of the Semiconductor Group of the Nuclear-Reaction Laboratory." Orig. art. has: 4 figures and 7 formulas.

ASSOCIATION: Ob"yedinenny*y institut yaderny*kh issledovaniy (Joint Nuclear Research Institute)

SUBMITTED: 25Jul63   ENCL: 00

SUB CODE: EC, NP   NO REF SOV: 003   OTHER: 006

Card 2/2

L 45191-65   EWT(m)/EWP(t)/EWP(b)/EWA(h)   IJP(c) JD

ACCESSION NR: AP5009828   UR/0367/65/001/002/0250/0251

AUTHORS: Balodis, M. K.; Bondarenko, V. A.; Prokof'yev, P. T.;
Simonova, L. I.

TITLE: Spectrum of internal-conversion electrons produced upon
capture of thermal neutrons by indium

SOURCE: Yadernaya fizika, v. 1, no. 2, 1965, 250-251

TOPIC TAGS: indium, conversion electron spectrum, thermal neutron
capture, beta spectrometry, gamma transition, internal conversion
coefficient

ABSTRACT: The spectrum of the internal-conversion electrons pro-
duced upon capture of thermal neutrons by indium was plotted in the
40--600 keV energy range with a β spectrograph of 0.4--0.5% resolu-
tion, described by the authors elsewhere (Izv. AN SSSR ser. fiz. v.
28, 262, 1965). The registration of the spectrum on a photographic

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ACCESSION NR: AP5009828

plate with R-50 emulsion took 1.5 hours at a reactor power of 1500 kW (5×10^{12} neut/sec-cm^2). Conversion lines were observed, corresponding to gamma transitions at 60.7, 85.5, 96.1, 115.0, 126.5, 141.2, 155.6, 162.3, 171.0, 173.4, 186.2, 203.4, 234.8, 271.5, 284, 289, 335, and 384 keV. The internal conversion coefficients were estimated for some of the transitions. The ratio of the cross section for isomer production was estimated from the intensity ratio of the 138.5 and 415 keV conversion lines in Sn^{116} and found to equal 0.8 ± 0.4. Orig. art. has: 1 table.

ASSOCIATION: Institut fiziki Akademii nauk Latviyskoy SSR (Institute of Physics, Academy of Sciences, Latvian SSR)

SUBMITTED: 24Jul64   ENCL: 00   SUB CODE: NP

NR REF SOV: 002   OTHER: 007

Card   2/2